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ABSTRACT

In this monograph, the author has attempted to bridge the gap between the knowledge acquired through the behavioral sciences about change processes and the understandings that are needed by the superintendent of schools to manage programs of change and to maintain the adaptability of the public schools to the current needs of our society. The author argues that before he can develop the skills needed to manage programs of change, an administrator must have some knowledge of the various phenomena associated with change and of the consequences that ensue from the different change strategies employed. The author looks at barriers to change and strategies for change from an administrator point of view and discusses personnel administration as it relates to educational change. The characteristics of innovation, the adoption of an innovation, and the process of diffusion through which innovations are implemented are among other topics discussed. (Author/DN)

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The Administration of Educational Innovation

By Thomas E. Woods

(A Reprint)
1971

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BUREAU OF EDUCATIONAL RESEARCH
School of Education
University of Oregon/Eugene

The Administration of Educational Innovation

by Thomas E. Woods
Superintendent of Schools
Beaverton, Oregon

BUREAU OF EDUCATIONAL RESEARCH
School of Education
University of Oregon / Eugene
May, 1967

Preface

Stability and change are significant problems for educational administrators as well as for administrators of all other social institutions. On the one hand, traditional institutionalized procedures persist, frequently even beyond the point where one can define their continued constructive functions for the attainment of the goals of the institution. On the other hand, the management of change, both to eliminate non-functional programs and processes and to adapt the institution to the needs of the broader society, produces new areas of concern for the administrator of any viable organization.

In this monograph on change and educational administration, Superintendent Thomas Woods has attempted to bridge the gap between the knowledge acquired through the behavioral sciences about change processes and the understandings which are needed by the superintendent of schools in order realistically to manage programs of change and to maintain the adaptability of the public schools to the current needs of our society. This monograph is based upon the assumption that before the administrator can develop the skills which he needs to manage programs of change, he must have some knowledge of the various phenomena associated with change and the consequences that have been perceived to ensue from the different change strategies that may be employed.

This monograph is a step forward in two ways. First, it is almost a pioneering effort by a superintendent of schools to review sophisticated behavioral scientific research and to discover its relevance for the practicing superintendent of schools. A great deal more needs to be done by people who are competent to employ behavioral scientific research and concepts and who have practical, technical, as well as intuitive familiarity with the problems of educational administration.

Second, it is in evidence that scholarship need not be disassociated from the practical man of affairs. Dr. Woods is a successful, alert and forceful superintendent of schools. He prepared this manuscript while engaged in numerous developmental programs for the improvement of the quality of education within his school district. Perhaps this monograph makes its most important contribution because it was not written in the "cloister of the university" apart from the daily routines of the superintendency, but rather as vitally a part of those routines.

Keith Goldhammer, Associate Dean
School of Education
University of Oregon, Eugene

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Acknowledgments

My initial interest in this topic was stimulated by a conference in Portland, Oregon, in October, 1964, on "Change Process in the Public Schools" conducted by the Center for Advanced Study of Educational Administration of the University of Oregon. I am particularly indebted to Dr. Keith Goldhammer, Associate Dean, School of Education, University of Oregon, for stimulating, encouraging and helping me prepare this monograph. I also wish to express my gratitude to Dr. Richard O. Carlson, Center for the Advanced Study of Educational Administration, University of Oregon, for reading and commenting on the first draft. Dr. William McDougall and Dr. Gordon McCloskey, School of Education, Washington State University, also read the manuscript and made some valuable suggestions for which I am indebted. If the writing on the following pages approaches minimum standards of clarity and conciseness, I must give credit to Mrs. Leota Ferrin of Beaverton High School who spent many hours helping me write and rewrite the manuscript. Finally, Dr. Chester Bumbarger and Miss Margaret Nielsen of the Bureau of Educational Research were invaluable in preparing the final manuscript, and I wish to express my gratitude to them.

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Introduction

Some excellent research on the change process in education has been published during recent years. I have attempted to provide a concise summary of the literature describing this research for busy, practicing administrators. Although this monograph was written for administrators, particularly superintendents and principals, other educators are encouraged to read it.

While writing this paper, I noticed that very few technical terms were needed to summarize the literature. Three key words—*innovation*, *adoption*, and *diffusion*—appeared continually, and perhaps these terms should be defined before the first chapter. *Innovation* refers to planned, systematic change, which the individual perceives as a new way of doing something. *Adoption* refers to the decision of a person to make full use of an innovation. Finally, *diffusion* refers to the spread of an innovation from the point of origin to the final users in the system of education.

I. Preparing for Change

Superintendent Forrest paced the floor in his office. He had received another phone call from the Citizens For Public School Improvement asking about changes in curriculum taking place in nearby districts. The press had carried stories about some new programs in these districts, and Superintendent Forrest surmised that these stories had prompted the phone calls. Other groups were also on his back—parent clubs, pressure groups, and even teachers—all anxious to see new ways of doing things tried out in the school district.

Of course, Superintendent Forrest had heard about "new math" and "non-grading" from some nationally recognized experts who spoke at the last administrators' conference he attended. He realized these men knew what they were talking about, for in spite of the substantial fee they charged to give a speech (they called it an "honorarium"), they seemed to be in great demand.

When he returned from this conference, he thought, "How different things are now." When he first became a superintendent, administration of a school district was much simpler. In those days one heard about new ideas, but one waited before encouraging teachers to try them. After all, these experiments could backfire, and then there might be repercussions. But in recent years many superintendents did not wait. They "hopped on the bandwagon" and pushed their principals and teachers into trying something new. "Perhaps I had better push a little, too," thought Superintendent Forrest as he paced his office. "It might get a few of these people off my back."

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As Superintendent Forrest continued thinking about the days when he first became a superintendent, he remembered fondly the leaders in curriculum development, school administration, and educational philosophy, the ones whom educators followed in the old days of slow and gradual change. Now everyone was in the act—government officials, private foundations, scholars in various disciplines, and vocal citizens' groups—and all of them were pushing for rapid change, involving anything and everything that was new or different.

Perhaps our superintendent and his district, like many other districts, are still geared to meet the needs of a society that no longer exists—a stable society with a slowly changing technology. But today's society is no longer stable, and technology does not change slowly. Their school districts are caught in this process because they must respond to the demands and needs of a changing society. No longer can schools drift along and maintain a "wait and see" philosophy. On the contrary, schools are pressured to be in the forefront of change, to make long range plans for installing new programs, and to "keep ahead" of other districts.

All these factors cause problems for superintendents who were trained to maintain the *status quo* by administering existing programs with efficiency and effectiveness. Since they structured their whole operation toward this end, they find difficulty in changing their method of operation. Adopting new instructional practices involves knowledge they do not have, attitudes they do not possess, and skills they have not developed. How, then, does a formerly successful administrator such as Superintendent Forrest become a dynamic leader for planned change in his district? What does he need to know?

To begin with, Forrest must gain a new knowledge base which includes insights and understandings of the process of change. This leader, in other words, understands the process by which people make a decision to try a new method of individualizing a reading program, evaluating teaching effectiveness by tape recording, or using a new piece of equipment. Using the jargon of the profession, the superintendent must understand the process by which a teacher adopts an innovation.

The next step of the new knowledge base concerns the diffusion of a successful innovation. This requires a study of the communication process, because ideas do not spread unless people talk to each other about them. Then, too, he must realize that each innovation has certain characteristics which may help or hinder its acceptance by other

people, and that in every situation some factors may become barriers to the diffusion of an innovation.

If Superintendent Forrest wishes to administer a district that institutes change on a planned, systematic basis, he must understand how individuals decide to accept an innovation, how innovations spread from one source to another, how the characteristics of the innovation affect the rate at which it spreads, and what some of the barriers are that retard innovation. In addition, the administrator will be concerned with up-dating his organization and his district's programs of personnel administration and curriculum development. In each of these areas the knowledge he gains about innovations will need to be applied.

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II. Adoption Process

Superintendent Forrest pondered. How does one begin the study of the change process? With the individual teacher, he supposed. But how does one persuade the individual teacher to adopt a new program? Or does one?

Even while considering such a possibility, (and deciding against it), Forrest recalled a recent conference with one of his third grade teachers. "What was her problem?" he thought. "She seemed to feel that she wasn't reaching all of her youngsters in reading, and what did I think of an individualized reading program?"

She had described the program. The pupils select their own reading materials, with the guidance of the teacher and the librarian, and read them in class during the reading period, going up to the teacher one at a time, reading a passage or two orally, and discussing the content of the story with the teacher. If an individual student indicates a problem with a word attack skill, the teacher provides help, using the basic series or some other resource. She uses the same approach with groups of youngsters who have similar difficulties.

Forrest recalled that this teacher told him how she first became aware of individualized reading while looking at an article in a professional magazine in the faculty room of her school. She attended a conference in which one of the speakers described individualized reading and following the conference she did further reading and then talked to a third grade teacher in another school in the district who was using it. Then she was back in Forrest's office for further

encouragement, this time bringing with her the school librarian who wanted to help. That was six weeks ago, and her trial with part of the class had gone so well that she had decided to use it with the entire class.

Here, then, was the very clue to the change process—the individual teacher.

The study of the change process may well begin with considering how an individual teacher might decide to try something new. First of all, this "something new" is almost always borrowed from someone else or somewhere else. Most human beings, including teachers and administrators, do very little, if any, inventing. With all the stress on creativity and inquiry training in education, this very fact may have some negative connotation; however, there is nothing wrong in borrowing ideas or programs from others, and, in turn, helping others borrow from you. As a matter of fact, societies, groups ,and schools advance by this very process. Ralph Linton (1936) puts it this way:

> "If every human group had been left to climb upward by its own unaided efforts, progress would have been so slow that it is doubtful whether any society by now would have advanced beyond the level of the OLD STONE AGE. The comparatively rapid growth of human culture as a whole has been due to the ability of all societies to borrow elements from other cultures to incorporate them into their own."

In the description of Superintendent Forrest's third grade teacher, the several stages of the change process were mentioned. These correspond to the five stages delineated by Rogers (1962) in his description of the adoption process: awareness, interest, evaluation, trial, and final adoption.

The *awareness* stage began when the teacher first noticed an article on individualized reading in a professional magazine. She had felt a little uncomfortable because she realized that she was not reaching a few students, even though she was recognized as a good third grade teacher. But at this point she was not strongly motivated to do much one way or another.

When the third grade teacher attended the conference to hear a speaker talk on individualized reading and then took the time to do further professional reading, she had arrived at the *interest* stage. This is sometimes called the learning stage because her behavior had purpose and direction as she sought more knowledge and information.

The merits of the idea were then evaluated in the teacher's mind. She asked herself if they were compatible with her present way of

teaching and what consequences she might anticipate. The visit with the other third grade teacher probably helped her in this *evaluation.*

The decision to use an individualized reading program with part of her class, which she made with some encouragement from the administration and the librarian, was the actual *trial* stage. She limited her trial to a small group and made careful observations of the progress of these youngsters. Only after a six weeks' trial did she enter the final, or *adoption*, stage.

During the entire adoption process active communication occurs. In the awareness stage the mass media sources of information are very effective. The individual usually becomes aware of the innovation through a book or a professional magazine. Sometimes teachers are introduced to an innovation for the first time by a speaker at a conference or professional meeting. Later, at the evaluation stage, personal sources of information, two-way or multi-flow communication, are most important. The influence of the group is strong, both in the evaluation and in the trial stage.

How long does it take to get a "new thing" going? For an individual, each of the stages takes a varying amount of time, and each separate stage differs from one individual to another. Usually, the awareness stage is the most rapid, because most people learn about an innovation through a mass media source of information. Since this is one-way communication, it takes little time. However, in the evaluation and trial stages where a great deal of two-way communication occurs, the process slows down. In other words, the potential user hears about a new idea quickly through a mass media source, but as he considers trying it, he takes time to discuss the new idea with others.

As mentioned earlier, the length of each stage (awareness, interest, evaluation, trial and adoption) will vary from one individual to another. The individuals who first adopt a new idea, the professionally inclined, are usually among the first to learn about it. They move through the process more quickly than those who adopt the idea later because they are more favorably inclined toward innovations and are less resistant to change. Also, they proceed through the process in a different manner from later adopters. They move from awareness to interest to evaluation rather quickly and then move cautiously, deliberately, and slowly during the trial stage. There is a reason for this. Because they are taking a greater risk than those who adopt the idea later, they decide to put the innovation to a rigorous test before adopting it.

Early adopters follow another interesting practice during the trial stage. They test the innovation on a limited basis for the same reasons that they take a longer time during the trial period. They are taking a risk, and the possibility of failure dictates limited testing. This

reduces the degree of the loss financially and in other ways. Those who follow later try out new ideas on a larger basis and take progressively less time to test them. The very last adopters use an innovation without any real trial period.

People also vary in rejecting a new idea. This may occur at any time during the process, and people actually do reject innovations after they adopt them. The last to adopt innovations discontinue them most frequently, and the first to adopt usually discontinue them less frequently. Again, sound reasoning dictates this procedure. The first to adopt an innovation put it through a rigorous trial, and if the trial is successful, these people understand the innovation thoroughly and are committed to it. Those who pursue a less rigorous trial period acquire less understanding of the innovation and are thus less committed to it.

This, then, is the manner by which an individual adopts an innovation, going through a sequential process involving several steps. The length of each of these steps in the process varies for each individual, and any one step in the process varies from one individual to another.

But the story doesn't end with the adoption by one individual or one school. Innovations spread from one person to another, from one school and district to others. This, diffusion, is the next related process to consider.

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III. Diffusion Process

The latest issue of Education USA *(1966) lay on Superintendent Forrest's desk. He picked it up, and as he read, two sentences caught his attention:*

> "A few years ago it was said firmly that five full decades were necessary for a new notion to thoroughly permeate the system, but this has been drastically reduced. They are talking now of somewhere between three and twenty years for the computer to become important in the average classroom."

Forrest was not so sure about the computer in the classroom, but he did feel that since Sputnik, there had been some rather dramatic examples of new programs, particularly in science and mathematics, spreading quickly through school districts and permeating the entire educational system. Until recently, public education was subject to much criticism because even the leading schools took a long time before trying something new. Now innovations were diffusing more readily from the source of invention or creation to the ultimate users in school districts throughout the country. Superintendent Forrest thought that merely knowing that innovations spread was not enough. As a school administrator he had to understand how *innovations spread if he were to exert a positive influence on the process.*

Most of the known information about the diffusion of innovations comes from experiments and inquiries in the fields of anthropology, rural sociology, and medicine. From anthropology it is learned, first of all, that a necessary condition for diffusion is contact and interaction among peoples; and secondly, that diffusion is a most vital process in the advancement of human culture. Ralph Linton (1936) illustrates this rather clearly:

> The slow cultural advance of societies which are left to their own abilities is well illustrated by the conditions in isolated human groups. Perhaps the outstanding example is the Tasmanians. These people were cut off from the rest of mankind at least 20,000 years ago. When they reached their island they seem to have had a culture which, in its material development at least, corresponded roughly to that of Europe during the Middle Paleolithic. They were still in this stage when Europeans first visited them during the eighteenth century.

If schools can be considered societies, then teachers and others associated with schools must have opportunities for contact with people outside their schools and school districts. Without this interaction and the resulting sharing and borrowing of ideas, there will be "Tasmanian Schools" offering "Middle Paleolithic" program to tomorrow's citizens and leaders.

In the previous chapter, adoption was described as a process that happens within the individual. Diffusion, however, occurs among individuals and does so only when these individuals have opportunities to interact. People usually learn new ideas from other people and each person's decision to adopt an innovation in turn influences the decision of others. However, no two people react the same way to new ideas. Some are leaders in accepting change, others follow, and still others may resist or even reject change. These axioms serve as a starting point in considering how the process occurs. In order to explain the ways in which people react to innovations, Rogers (1962) has created a fictional division of people, grouping them by their behavior patterns when confronted with something new.

The first ones to try an innovation are venturesome, willing to take a risk and also willing to face the consequences of their actions. These Rogers calls the innovators. They are generally young and less likely to be conditioned by the traditions of the system. Furthermore, they usually have more intelligence and better education. There appears to be a reason for specific characteristics found in innovators. Simply stated, innovators lack security of tried methods and the experiments of others. They must be thoroughly informed about the innovation and able to anticipate situations that might arise as they evaluate and test the new idea. Since th
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There are a few other characteristics that innovators possess, including numerous contacts outside their school or school system, usually with other innovators. When it comes to the adoption process, they proceed more rapidly than those who adopt an idea later, but they proceed in a different manner. Being more receptive to new ideas and usually hearing about them first, they take less time going from awareness to trial. However, since they are the first to try, they do have a longer and more rigorous trial period than those who follow later.

The early adopters follow the innovators. Characteristically, these people are more a part of the local system and have fewer contacts than innovators with people outside the system. The opinion leaders are usually in this early adopter group, and most people check with them when they are considering trying something new. Because they enjoy a relatively high social status, they are really the ones responsible for getting the "ball rolling." Adoption proceeds slowly at first, but picks up rapidly after the opinion leaders decide to adopt.

The next group to adopt the innovation are known as the early majority, the deliberate people who get their ideas slightly before the average person does. They consider an innovation for some time before trying it, but spend less time going from trial to adoption than either the innovators or the early adopters. They rely on the trial experiences of the opinion leaders.

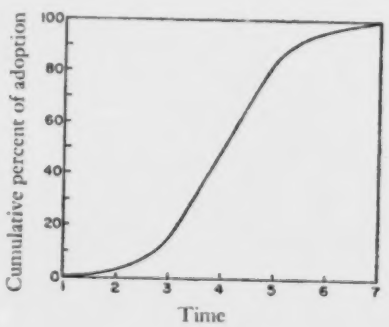
The late majority follow the early majority and are very skeptical of anything new, adopting only after feeling the weight of public opinion and social pressure. They take an extremely long time going from awareness to trial, but the trial period is very short, if it exists at all. They adopt because others have and are usually more likely to discontinue an innovation than those who adopt it earlier. Lacking the understanding that comes from a careful trial, they are not committed to the innovation and consequently, are quick to discard it.

The laggards are the last to adopt an innovation. They cling to tradition, have a low social status and few contacts with people within the system, and are suspicious of anything new. Sometimes laggards adopt an innovation after it has become obsolete.

How many people are in each of these categories? Rogers (1962), whose studies applied mainly to agriculture, estimates about 2½ percent innovators, 13½ percent early adopters, 34 percent early majority, 34 percent late majority, and 16 percent laggards. There are no similar studies in education, but it would be safe to say that innovators constitute a small minority in education, there are more early adopters than innovators, and the majority of educators follow these two groups in adopting innovations.

Some interesting data in education on the rate at which innovations spread come mainly from the studies of Carlson (1965), and along with Rogers' categories give us some clues to understanding the rate and process of diffusion in this particular field.

If one were to follow the diffusion of any innovation through a system, such as a school district or a state-wide system of education, a record could be made of the number of persons adopting the innovation over the period of time from the first adoption to the final one. If the data were plotted on a graph with time as one axis and the cumulative percentage of adoptions as the other, the resulting curve would follow an "S" shape.



The Normal Diffusion Curve, Richard O. Carlson, *Adoption of Educational Innovations*, Eugene, Center for the Advanced Study of Educational Administration, University of Oregon, 1965, Fig. 1, p. 7.

The first people to adopt are a very small minority. These are the innovators who get their information about the innovation from outside the system. They are quick to try the innovation but do subject it to a long and extensive trial. The innovators are followed by the early adopters, a larger group than the innovators but still a minority of the potential adopters. After they adopt the innovation, the pace quickens significantly because most potential adopters are in the early majority and late majority categories. They subject the innovation to a very short trial and are quick to adopt it after they check with the opinion leaders, (early adopters). The process slows down with the laggards, a small percentage of the possible adopters.

The "S" shaped diffusion curve is caused by two factors, the size of the adopter categories and the length of their trial periods. The first to try are a small minority who have a long trial period so the rate at which individuals are adopting the innovation is slower. Each of the following groups to try is larger and each takes less time to try and test the innovation. Thus the rate of diffusion increases rapidly and continues until the laggards enter the picture.

As mentioned earlier, most of the known information on diffusion comes from experiments and inquiries in the field of anthropology,

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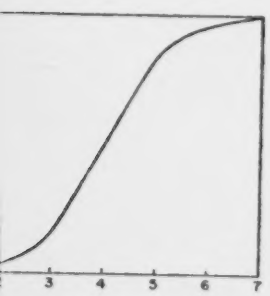

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rural sociology, and medicine. But some studies in education give insight about the process and will now be examined under the following major headings: (1) the rate at which educational innovations diffuse; (2) the forces providing the impetus for change; (3) the leaders in getting change started; (4) the structure of the educational system as it affects innovation; (5) the need for adaptation in the structure of education.

Paul Mort (1964) and his students at Teachers College, Columbia University, were the first to study the diffusion of educational innovations. They concluded that change occurs much more slowly in education than in other fields of endeavor. Characteristically, 50 years are required for an innovation to spread through the American educational system, with only 5 percent of the school systems adopting an innovation during the first 15 years. The next 20 years are marked with much noise and fanfare as districts hop on the bandwagon. Finally, comes a long, tedious period until the last of the schools adopt the innovation. Mort's studies indicate that the district's financial ability to support schools is the single most important factor in the spread of innovations, followed by public interest and understanding of school programs, factors of lesser importance.

Carlson (1965) appears to be the first to question Mort's studies and conclusions finding that innovations take much less than 50 years to diffuse. Specifying school districts in West Virginia and Pennsylvania as examples, Carlson found modern math programs introduced in 1958 spreading to 88 percent of the districts studied within five years. Furthermore, he found that the status of the superintendent with his fellow superintendents was the key factor in the spread of innovations, rather than the financial ability of the district. The higher status superintendents were among the first to adopt; they influenced other superintendents who, in turn, adopted the innovation in their districts, and the innovation spread. In Carlson's studies, amount spent per pupil (one measure of financial ability) did not correlate with rate of adoption.

It appears that Mort and Carlson reached conflicting conclusions, but the fact that Carlson's studies followed Mort's may indicate that the rate of diffusion is quickening. Perhaps it takes less time for an innovation to spread than it did 20 years ago.

If the rate of diffusion is quickening, then where does the impetus come from? Do forces outside the system affect the rate at which innovations diffuse? The answer appears to be "Yes." Ross (1958) reports on the rapid spread of driver education as a result of the promotional efforts of car dealers, and Brickell's (1964) studies in New York State clearly indicate that Sputnik speeded both the introduction and diffusion of new science and math programs. However, forces affecting change are not completely inanimate; people and

organizations also get things started. Mackenzie (1964) concludes specifically that educators are not the ones who get things started but rather foundations, influential writers and people with national visibility give the greatest impetus to adopting new ideas. The dominant initiators of change are, by and large, outside the educational system.

Impetus for change does not mean that change will occur. Diffusion involves people, and someone must provide the leadership if new ways of doings things are to spread. In education, innovations are usually introduced by the superintendent, who is situated in a position at which policies are formulated and recommended to the school board. Carlson's (1964) studies in West Virginia and Pennsylvania further indicate that the prestige of the superintendent affects the rate at which innovations spread. The superintendent who is highly respected in his state or region usually administers the district which leads in adopting innovations. The innovations spread to districts whose superintendents enjoy less status among their fellow superintendents.

There is an old story about the superintendent who stayed away from his office one afternoon. Someone from the district found him down by the railroad station watching the afternoon train go through town. The superintendent was asked what he was doing. His reply was that he liked to watch the train come through because it was the only good thing coming through town that he didn't have to push. This story does exaggerate the importance of the role of the superintendent, but it is safe to conclude that innovations are likely to occur with the support of the superintendent and much less likely to occur without it.

One could assume that the structure of the system affects the diffusion of innovations. The result in various fields, as summarized by Rogers (1962) who indicates that the innovations spread from one individual to another in a social system over a period of time, does not indicate that the structure of the system needs to be modified or adjusted to permit the diffusion of an innovation. Nevertheless, some evidence exists that indicates a need for a structural change in educational systems. Wayland (1964), in his analysis of the American educational system, reaches the conclusion that schools are essentially bureaucratic institutions and that teachers are essentially bureaucratic functionaries. By that he means that teachers are highly involved in performing duties which someone else has planned for them. In a bureaucratic institution ways of doing things become fixed and sterile, and the structure of the system tends to create situations that further inhibit the spread of new ideas.

If Wayland is correct and if schools are truly bureaucratic institutions, what special adaptations must be made in the structure of educational organization to get innovations started and spread from

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school to school? Miles (1964) describes two special adaptations which he calls temporary systems and linkages.

Temporary systems are those that operate within an organization or institution but have not been completely accepted as a permanent part of the organization. A special pilot program or demonstration class, as well as summer workshops for administrators, would be examples of temporary systems. All these arrangements are concluded at a specified time, and parts of them may or may not be incorporated in the permanent system. Since the structure and concepts of schools and school districts are as they are, new programs are often seen as threats to existing practices, and change becomes difficult to incorporate. The temporary system reduces this threat because it has a limited life, and the permanent system may reject all or part of the temporary system without losing face.

How do innovations, established through a temporary system, such as a pilot school, diffuse outward to the rest of the system? This is what Miles (1964) refers to as "linkage." Separating the innovation from the rest of the system lessens the restraints against innovation and permits concentrated efforts to be expended on the innovation. If the innovation is to spread throughout the system, there must be communication links with the whole system. Teachers and administrators in all schools must know what is happening in the pilot or experimental school.

Miles suggests two ways to establish these communication channels. Some of the people chosen to work on the innovative project must be people with satisfactory personal and professional contacts with opinion leaders in other schools and with persons who will make the decision on whether the innovation is to be diffused throughout the system. Secondly, clearly defined communication channels must be established between persons in similar positions. The teacher in the pilot program must be able to communicate with teachers of the same grade level or subject area in his system. Administrators in the pilot program must be able to communicate with other administrators. These channels provide information and feedback on the progress of the innovation, and people outside the temporary system are more likely to believe the innovators if they have contact with them. Innovative ideas will spread from one teacher to another if teachers find themselves in similar situations or have problems similar to the teacher in the temporary system. Diffusion of innovations can only be developed by providing the necessary linkages between the people in the temporary system and those in the permanent one.

IV. Characteristics of Innovation

Superintendents in a three-county area had gathered for their monthly off-the-record meeting. Superintendent Forrest, while sipping his coffee, asked one of his fellow superintendents about new programs he was using and was a little surprised at the reaction he received. This superintendent was perplexed because all 15 elementary schools in his district were now on a modern math program, and two schools had been using a non-graded primary for three years. But, on the other hand, none of the other elementary schools would try the non-graded primary program, and foreign language at the elementary level just hadn't worked well at all. The two superintendents spent most of their lunch time trying to figure out why some new programs meet with a high degree of success and why others that appear equally promising never seem to get off the ground.

From many fields of endeavor we learn that only a few innovations succeed. In the United States, for example, the Department of Agriculture (Rogers, 1962) estimates that 90 percent of all new products fail within the first four years of release. According to anthropologist Ralph Linton (1936), for every successful invention in human society there probably were at least a thousand that fell by the wayside.

Practicing school administrators, like Superintendent Forrest and his luncheon companion, are well aware of the fact that teachers react in a variety of ways to new programs. Eichholz (1963) has provided

a list of teachers' comments about new ways of doing things which should sound familiar to most administrators:

"The information about the innovation is not easily available."
"I want to wait and see how good it is before I try it."
"Other things are equally as good."
"It costs too much money."
"It takes too much time."
"School regulations will not permit it."
"I don't know if I can operate the equipment."
"These gadgets will never replace a teacher."

A careful look at this list reveals that some of the comments relate to the nature of the innovation itself—costs too much money, takes too much time, the equipment is difficult to operate. Thus, innovations themselves have certain characteristics that may or may not be related to the readiness with which they are adopted and diffused. For a more complete explanation of this phenomenon, one might turn again to Rogers (1962) who cautions that these characteristics are not absolutes. Like beauty, they exist in the eyes of the beholder, the potential user who makes his own decision on the number of characteristics a given innovation possesses.

Teachers appear to respond favorably to the idea of using teacher aides in their schools. When asked their reasons, they say that many of the former unpleasant tasks are now performed by the aides. Among these tasks are typing ditto masters, running the ditto machine, and keeping a multitude of records. By delegating a number of unpleasant duties to teacher aides, teachers find more time and energy to perform their professional duties more effectively. This innovation can be said to have a relative advantage over the old practice, as hiring a clerical person to do routine duties has certain advantages over having a professional person, the teacher, perform these duties. The term "relative advantage" refers to the degree to which an innovation is better than the one it replaces. The advantage can be in any one of several directions—increased profit, greater output, improved product, reduction of unpleasant working conditions. The example given here relates to one of these directions, namely reduction of unpleasant working conditions.

A principal once described his experiences with team teaching in his elementary school. During the first year of operation all the teachers involved made a valiant effort but "wanted out" at the end of the school year. A variety of reasons were given: it demanded an excessive amount of time; they felt they spent too much time working with other teachers, leaving them less time to think about problems of individual students. The principal, making some personal observa-

tions, noted that all these teachers were experienced, self-contained classroom teachers who were accustomed to making single and final decisions about their classes. Team teaching called for cooperative planning and decision-making which was incompatible with the way they had always operated. In the second year of operation most teachers involved in the team teaching were either new or had limited experience. As a result, fewer problems developed because past experience did not conflict with the operating procedures of a team teaching arrangement. As far as these experienced teachers were concerned, team teaching lacked compatibility as it was not in agreement with their cultural norms, with their existing values and with past experience of the professional users. Since old ideas are often used as yardsticks to evaluate new ideas, people feel more secure with new ideas that do not conflict with existing values.

Innovations are not equally simple or complex. A 16 mm film projector is more difficult to operate than an overhead projector, and some programs of modern math require a greater knowledge of mathematics than others. New programs, particularly in science and mathematics, stress the discovery and inquiry approach, a method which is, obviously, more difficult to operate than merely giving students the facts, asking them to memorize them in order to give them back on a test. Complexity, the degree to which an innovation is relatively difficult to understand and use, influences the adoption and diffusion of these more complex innovations.

Some innovations may be tried on a more limited basis than others. For example, modern mathematics programs may be tried in one or two classes in a school. They need not be attempted by all teachers at the very beginning. On the other hand, if a school wishes to try modular scheduling or non-grading, it is extremely difficult to try it on a limited basis. Having some groups of students on 20 minute modules and others on 50 minute periods in the same building becomes a difficult administrative task. This characteristic of an innovation is called *divisibility* and relates to the degree to which an innovation can be tried on a limited basis. Obviously, ideas that can be tried on a limited basis will be more readily adopted and stand a better chance of spreading.

The results of some innovations are observed and described more easily than are the results of other innovations. Most teachers are familiar with Reading Laboratories, such as S.R.A.'s, in which reading activities are arranged on a series of levels with corresponding tests which students may take and score themselves. This program is far easier to observe and to explain to others than the philosophy, organization, and operation of a non-graded primary. The degree to which the results of the innovation can be observed by people, and the ease with which it can be described and explained is referred to as its *communicability*. Innovati
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These descriptions of the characteristics of innovation are plausible, but the evidence showing that these characteristics have a noticeable effect on the spread of new ideas is far from conclusive because adoption is an individual matter. People try to reject an innovation, and many times an advantage to one potential user is a disadvantage to another. As mentioned earlier, each person judges how much of any one characteristic a given innovation possesses, and his judgment influences his decision to try or reject something new.

Available research does give some interesting information. Carlson's (1965) studies in West Virginia and Pennsylvania, indicate that innovations do not spread at the same rate. For example, modern math programs spread through 75 percent of the school districts studied within five years, while elementary foreign language programs spread through only 37 percent of the school districts in a ten-year period. To find some clues for the causes, he began by using a panel of judges to rate innovations on relative advantage, compatibility, complexity, divisibility and communicability. The innovations that were considered the best possibilities for more rapid diffusion from district to district were those rated high in relative advantage, compatibility, and communicability and low in complexity. His results indicate that the diffusion of these innovations (elementary foreign language, accelerated high school programs, programmed instruction, team teaching, and modern math) were only partially accounted for by the five characteristics of innovations. Carlson's findings support Rogers' position that no conclusive data are available which give positive evidence on the degree to which the characteristics of an innovation affect its diffusion. Further research and study are needed.

If a case could be made for any one characteristic it would have to be compatibility. Anthropology, agriculture, and education all have examples of innovations that were rejected because they were not compatible with cultural norms, with existing values and past experiences.

Apodaca (1952) describes the failure of a county extension agent in his attempt to introduce an improved hybrid seed corn into a Spanish-American farm community in New Mexico. Even though the hybrid seed corn yielded three times the normal harvest of the old varieties, the innovation did not last. The village farmers discontinued the use of the new hybrid seed corn for one simple reason. When the corn was ground to make tortillas, a flat corn bread indispensable to the local diet, it had a different taste from that of the old corn and did not hang together as well. People just wouldn't use it.

Rogers (1962) describes how consumers in several metropolitan areas of the United States rejected a headache pill which could be

taken without water. The company introduced the pill in several cities following an advertising campaign which pointed out the advantages of the new pill. The researchers in their follow-up studies found that the typical consumer believed absolutely in the combination of a glass of water and a pill to relieve a headache. The conception was built so thoroughly into their background of experience that the intensive advertising campaign could not change it.

Atwood (1964) describes how an innovative guidance program failed in a large urban high school because it involved certain organizational changes which conflicted with teachers' established ways of doing things. The system and pattern by which teachers worked with counselors and administrators were modified as part of the new program. The experienced teachers in the building resisted the program because it changed their pattern of social and personal relationship within the high school. Before the new program started they reported guidance problems to certain people. They were accustomed to this procedure and accepted it. The new program called for them to report to different guidance counselors. The new teachers did not resist the new program because they had no established patterns of social and personal relationships.

Miles (1964), in summarizing the studies reported in his volume, *Innovations in Education*, states that educational innovations are almost never started or installed on their merits. He feels that the characteristics of the local system, of the persons or groups involved, and of other relevant groups are the crucial factors. But he does infer that some characteristics of the innovation itself do affect adoption and continued use. Miles considers the following properties of innovations as most significant: cost, technological factors, associated materials, implementation supports, and innovation system congruence.

Cost tends to slow down an innovation, unless there is good evidence that the results of the innovation will be worth the added cost. Cost may be less of a factor if the innovation is divisible (i.e., can be tried on a limited basis to reduce outlay of money).

Technological innovations are usually easier to adopt but are also easier to discontinue or reject. They will diffuse more readily if the devices or equipment are not too expensive, if they are available when desired, and if they are convenient and easy to use.

Prepared materials aid the diffusion of educational innovations. One reason given for the success of the Physical Science Study Committee was the comprehensive materials, designed as complete units, that went along with the program.

By *implementation supports* Miles means training sessions for teachers, materials, working conditions, and hardware. Innovations that have these should diffuse more rapidly. Brickell (1964), reporting on change in New York State, indicates that the most successful

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innovations were those which were accompanied by the most elaborate help for teachers, including teaching materials, resource materials, guides, bibliographies, special workshops and programs to prepare teachers, and consultant help. Brickell feels that innovations may make teachers feel inadequate and uncertain, and that these feelings are often construed as outright resistance to change. Implementation supports help teachers reduce their feelings of inadequacy and uncertainty.

Innovations which can be added to an existing program without disturbing other parts of the program are more likely to be accepted. Innovations that appear to threaten existing practice are less likely to succeed. Innovations that increase teacher initiative and autonomy are more likely to be accepted. This is what Miles means by the term *innovation system congruence*. If the shoe fits, then someone will wear it.

V. Barriers to Change

Superintendent Forrest's thoughts returned to the luncheon discussion with his fellow superintendent. He doubted that they had really explored all the reasons that so many innovations fail and the successful ones diffuse at such widely varying rates. Certainly the characteristics of the innovations themselves accounted for some of these discrepancies, but not for all of them. Possibly there were other reasons, too.

As all of these thoughts continued to bother Forrest, he remembered a conference of professional educators he had attended the previous summer. The conference had been concerned with school-community relations, and one of the speakers was a public information executive with a large electronics corporation. This man had children in school. He served as a member of a school advisory committee, and as chairman of the education committee of his local chamber of commerce.

In a very interesting manner he made some remarks about the lack of accountability and competition in public education that made the audience feel uneasy. He was primarily concerned that parents could not choose the schools their children attended and hinted that perhaps schools should be required to produce some performance indicators similar to those of the profit and loss statement in business. To correct this situation he suggested the possibility of open attendance areas, so that parents could send their children to any school they wished, and, in addition, select the teacher or the class. The speaker suggested that this would put teachers and schools under pressure to perform

in order to attract and keep clients. If parents did not choose to send their children to a particular school or to a particular teacher, that school staff or that teacher would be replaced by others who could compete successfully in the open market for clients. The net result would be that the incentives and rewards would motivate teachers and schools to improve in order to keep clients.

Writers in the field of education have described several possible barriers to change in education. The lack of incentives or rewards, the bureaucratic administration of schools, a weak knowledge base, and the absence of a change agent appear to be the most common.

The episode which Forrest recalled relates to the first of these possible reasons, the lack of incentives or rewards. Carlson (1965) feels that the public schools are "domesticated," in the sense that there is no freedom of choice involving schools or their clients. Neither is free to select the other, a condition which very few institutions or organizations enjoy. The client purchasing other products or services is free to choose the supplier of the service, and the supplier is free to choose not to provide service to a client. For example, people seeking health services may select their family physician from among many who are available. The householder is free to decide who will provide house cleaning or gardening services from an available list of suppliers, and the supplier is free to reject the client. The schools have no such freedom except in some limited or severe circumstances usually defined by law.

In most situations where the individual suppliers compete for clients, the successful ones remain in business and the less successful fall by the wayside because their continued existence is not guaranteed. When the continued existence of an organization (e.g., the schools) is guaranteed, innovation is less likely to occur because the need to change is not there. Whether they perform poorly or well has no influence on the number of clients who must use their services. On the other hand, organizations whose continued existence is not guaranteed often find themselves in a situation where they must change in order to keep clients. If they perform poorly, the clients will look elsewhere for the service. Are educational institutions in a preferred classification where the competitive system is not applicable? If such is the case, then, obviously, other incentives and rewards must be found.

Many social scientists consider the organizational structure of schools to be another barrier which accounts for some of the lag in the diffusion of educational innovations. They agree with Wayland

(1964) that "schools are essentially bureaucratic structures, and the teacher's role is largely that of a functionary." People who are functionaries in a bureaucratic organization are not likely to be adoptive, innovative, or creative. On the contrary, they will perform the job that is prescribed for them by someone above them in the hierarchy, and that is about all that they do. They will tend not to change their behavior, and reluctantly accept and even resist efforts to change imposed from the top. If bureaucratic institutions tend to stifle creativity and self-direction of the individual, why are schools structured bureaucratically?

Since the term "bureaucracy" has some emotional and negative connotations, it might be well to clarify our use of the term by the definition of bureaucracy as "the administration of government through departments and subdivisions managed by sets of officials following inflexible routines." Historically, this type of organization was developed when society was more static and in this environment a bureaucratic system was effective. Today's society is dynamic and the bureaucratic organization does not readily adjust to meet the needs of this type of society.

According to Thompson (1964) a bureaucratic organization is marked by close supervision; failure to delegate authority; emphasis on regulations; quantitative norms, precedents, and the accumulation of paper work to demonstrate compliance; insistence on office protocol; fear of innovation; and restriction of communication. The bureaucratic organization operates on certain principles, described clearly by Argyris (1957) to achieve its goals. The first of these principles is work specialization, each person performing a task that is narrowly defined in order to increase quality and quantity of product. Work specialization requires a chain of command, some people exerting power over others to coordinate and direct the highly specialized parts of the organization. Following closely is the idea of unity of direction by which all parts of the organization have the same goals so that output is maximized. Finally, the span of control principle, under which each leader has a limited number of people reporting to him, gives greater control and those reporting to him less opportunity to exercise self-direction.

Argyris' (1957) studies go beyond the descriptive feature of this system to explore the consequences of bureaucratic organizations on individuals. The worker in a bureaucratic organization has minimum control over his work day, and he is considered an ideal employee if he is passive, submissive, and dependent. Furthermore, this employee will be required to keep his time perspective short, doing only those things immediately at hand. He will not be encouraged to make long-range plans. Rather than develop and broaden a variety of skills, he must refine and value a few shallow abilities and skills.

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The innovative person, on the other hand, is usually relatively independent, behaves in a wide variety of ways, has deep interests rather than shallow interests, tends to make long-range plans, aspires to an equal or a superior position with his fellows, and wants a high degree of control and choice in his own behavior. It is quite clear that the bureaucratic organization and the innovative person are not the least bit compatible.

In every school district and in every school building a need for some centralization, some control, and some standardization of procedures is, of course, necessary, but the amount should be just enough to permit effective and efficient use of resources and personnel. If centralization, control, and standardization are carried beyond this point, innovation is severely restricted and inhibited. Most educators are aware of the shortcomings and deficiencies of their school or their school district and quickly become accustomed to accepting these weaknesses as inevitable. Only the creative, innovative person wants to do something about them, and he will rebel. He soon will find the bureaucratic system exerting pressures on him to "Conform or suffer the consequences!"

One further illustration may help clarify the stifling effects of bureaucratic operation on people's desires to grow. In the field of education, administrators, guilty of separating thinking from doing, tend to set up an organization in which one group of specialists does the planning and thinking, and another group, the teachers, the doers, are expected to carry out these plans and programs. The result is that teachers who are not fully involved in the planning have difficulty understanding the purposes or the goals of the new program, and naturally they are not enthusiastic about something prescribed by someone else. This reaction is not peculiar to teachers. People who do not understand the goals and purposes of a program cannot be expected to anticipate the rewards. The consequence of this procedure in a school situation results in resistance to change that is imposed from above. The person who is merely the "doer" has a lower opinion of himself because someone else has devised the program and hands it to him. Consequently, he blocks or closes his mind to suggestions or plans that were not of his own doing to some degree. The only sure way to insure that people comprehend a program is to involve them in the planning and decision-making process.

Finally, a bureaucratic organization fosters parochialism because the people at the top of the hierarchy can control communication within the organization. Exchange of ideas beyond the person in immediate authority must occur before change occurs. As was mentioned in a previous chapter, awareness of innovation usually comes from outside the system. Teachers in a bureaucratic organization are often forced to limit their contacts to other teachers at the same grade

level, or in the same department, or to communicate only through approved channels. Through this process the school district fails to set up opportunities for teachers to communicate with teachers in other schools, in other districts, or in other geographic areas of the state or nation. Without opening these channels of information teachers remain unaware of the need or the possibilities for change.

If bureaucratic schools are inhibiting innovation in education, what must be done to correct the situation? A paramount requirement is to accept the idea that society is changing at an increasing rate, and for this reason greater pressure is placed on the schools to change their program. Control must assume less importance in the operation of schools. Change always brings with it some dislocation and some disorganization because people are less efficient the first few times they do things. Control assumes importance only after a program has been conducted many times. In some areas of the curriculum it is even conceivable that programs will need to be modified before the personnel become highly proficient and expert in their use. Modification of programs in the areas of mathematics and science is already underway. The more talented and able teachers are making important changes in programs that were put in their hands only two or three years ago.

Therefore, schools must become creative and adoptive, and this implies a loosening of the structure of the system. As Victor Thompson (1964) puts it, "The philosophy of administration for control must give way to philosophy of administration for adoption." The following four guidelines, again from Thompson, merit consideration:

(1) The effective administrator's main job is to release and guide the potential of the group. He seldom, if ever, exerts power over a group because this very act inhibits and decreases the potential creativeness of the group. Thus the group develops a professional outlook because their sense of commitment increases as members become more involved. Guidance and encouragement, not power control, foster creativity and innovativeness.

(2) The effective administrator must get one important message across to groups of people tackling problems; they should wind up where their search for better programs leads them rather than at some point pre-ordained ahead of time by a person above them in the organization. People tackling problems should feel uncertain, but they should feel uncertain about where their search leads them, rather than feeling uncertain about how to "second guess" the boss.

(3) The effective administrator provides a climate for innovation that is non-hierarchical in structure and flexible in organization. Each member of the group should be equal to any other member

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(4) Group processes and thinking are an indispensable ingredient for innovation and since behavior of people in groups is not fixed, with training individuals can become knowledgeable and sensitive in working with others. The experiences of the National Training Laboratories in Bethel, Maine, and Lake Arrowhead, California, demonstrate that administrators—business and public—can become more sensitive and skillful in working with people. The Superintendent must see that administrators have in-service opportunities to develop their skills in this area.

Finally, administrators must learn to be more tolerant of failure, setbacks and dislocations. Innovation implies doing something for the first time, and the first time is always less efficient than the second, third or fourth time around. Administrators must realize that some chaos and inefficiency accompany any change. They must also realize a less efficient but a more appropriate program is better than an efficient, obsolete one.

School are handicapped in making changes in curricular offerings or approaches to content because they have little or no knowledge on the effectiveness of new programs. Specifically, how does a superintendent or a principal convince teachers to try a new program such as team teaching or programmed instruction when so little is known about the merits of these programs? Is there any research data to give any indication that team teaching is a better type of organization for instruction than the self-contained classroom? A survey of the literature, both text and periodical, contains extremely little data on its effectiveness, yet its advocates refer to it as a bold, new venture, the key to new quality in education.

Nor is this condition of the weak knowledge base limited to new educational practices, such as team teaching; unfortunately, it is the case in many of the established areas of school operation. The study of Barton and Wilder (1964) on research and practice in the teaching of reading showed a sharp difference between what they assumed about reading and what they found out. For example, they assumed that researchers were highly trained and in close contact with scholars in the basic social sciences related to reading, that research findings in reading were cumulative and that methods and materials changed as a result of research findings. Finally, they assumed that an interaction existed among researchers, teachers, and publishers leading to improved materials and methods of instruction in reading. Their findings gave concrete evidence that researchers were not well trained and had very little contact with scholars in the basic social sciences related to reading. Furthermore, they found that the voluminous research was poor in quality and non-cumulative. And finally, they

found that materials currently in use by classroom teachers were very similar to the materials used in the 1930's, as teachers, by and large, continued to follow the teacher's manual of the basic reading series with only the slightest deviation.

The problem of the weak knowledge base has an added dimension. The scholars in education and various foundation fields do a very poor job of communicating the modest knowledge base that does exist. Ehrlich and Murphy (1964), in an excellent text on technical writing, cogently state that once the scholar begins his career, he must be an effective writer as well as an expert physical scientist, engineer, or mathematician. Certainly the same holds true or should hold true of education and other professions. Yet all too many choose to ignore suggestions from scholars in English, journalism and communications concerning usage, punctuation and documentation. For lack of technique, the ideas are lost in a quagmire of verbosity, cliché, and excessive verbalism.

Ashley (1963) feels that sociologists are the one group most ridiculed for poor communication. He satirically relates the story of the Good Samaritan in the jargon of the sociologist as follows:

> "And behold, a certain Socialite stood up and tempted Him saying, 'Master, what shall I do to be socially acceptable?' And He said unto Him, 'Thou shalt love thy in-group as thyself.'
>
> "But he, willing to justify himself, said unto Him, 'And who is my in-group?' And He, answering, said:
> "A certain fellow traveling from Aix to Ghent fell among traditionalists, who stripped him of his pretense, offended him, and departed, leaving him half mortified. And by chance there came down a certain realist that way: and, looking upon him as an out-group, he passed him by on the other side. And likewise an idealist, when he was at the place and also looked upon him as an out-group, he passed him by on the other side. But a certain man with a rounded personality, as he journeyed, came where he was; and when he saw him he adjusted himself to the social situation. And he went to him and took him to an inn and associated with him. Now which of these three, thinkest thou, was in-grouped with him who fell upon hard times? And he said 'He that acted democratically toward him.' Then he said unto him: 'Go, and adjust thyself.' "

These concerns of effective communication should not be taken lightly. Phenix (1962) puts this matter in its proper perspective by distinguishing between education in a democratic society and education in a non-democratic society. In the latter, education is in-

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tended only for the elite, a select group based on money, family or intellectual factors. Education here need not be shared because knowledge is not common property available to all. They may communicate with one another in a language or jargon of their own, precisely to keep the non-elite out. But in a democratic society, education is meant for all, and educational knowledge must be available and easily accessible for all who wish it. Therefore, it should be communicated, not in the language or jargon of the elite, but in the language of all the people. It should be so well presented that the layman can easily understand the ideas and make use of them with minimum effort. Educators may justly carry the "guilt feelings" for they have fallen far short of communicating effectively.

The final possible barrier to innovation in education is the absence of a change agent—the one who provides the stimulus for change, the one who gets things started. He uses knowledge, information, or ideas from some source (usually outside the system) to start other individuals on the process of adopting new ideas, new programs, or new ways of doing things. According to Rogers (1962) the effective change agent follows a strategy. He understands the cultural norms of the system in which he is working and introduces only those change elements most likely to fit the system. He helps the people in the system see the need for changing the ways they are doing things. He doesn't force the change on them, but rather helps them to evaluate and judge it in terms of their own situation. He carefully identifies the opinion leaders in the system who will help start the spread of the innovation to others within the system. The change agent, then, is one who advocates change and helps to get it started in a system.

In agriculture this job falls on the county agent, who operates through the extension service and forms a link between the agricultural scientist and the farmer. He has no other assigned duties. A vast network of agricultural experimental stations provides him with accurate and precise information and data on any given innovation. Unfortunately, we find no such comparable competent agent operating in education.

At least two administrators in education, the principal and the superintendent, could perform this role to some degree, but neither research nor opinion indicates that this is being done on a widespread basis. The traditional role of the principal and the superintendent has been to administer and preserve the *status quo* rather than to stimulate change. In the past the principal has been only a manager of the educational enterprise, and not necessarily the educational leader. Hopefully, this situation or emphasis will change in the future because schools will not change unless the principal wants them to change. Dynamic, growing schools have far-sighted, energetic principals who

provide the impetus for change. A recent study by a Task Force of the National Council of the Teachers of English (1965) proves this point. The Task Force visited 190 new programs for the educationally disadvantaged, both rural and urban, and in 116 districts and agencies in 64 cities and towns in all sections of the United States.One of their conclusions was that without a strong, competent, cooperative principal, programs were doomed from the start.

Carlson's (1965) studies on diffusion of certain innovations in West Virginia and Pennsylvania clearly indicate that the superintendent is neither the victim of his budget nor a powerless office holder dominated by the school board. Carlson found that innovations spread sooner and more rapidly in those districts whose superintendents were leaders among their fellow superintendents. This observation shouldn't come as any great surprise, as Lazarsfield (1963) reminds us that one of the tasks of the administrator is to build into his organization the provisions necessary for change and for the development of personnel and curriculum. Carlson's studies indicate clearly that this can be done and done effectively in public education.

These, then, are the barriers which block innovation in the system of public education. It is now pertinent to look at some strategies which should be considered in the area of personnel administration and curriculum if schools are to assume the leadership needed in today's society.

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VI. Personnel Administration

About a month after Superintendent Forrest's luncheon with his fellow superintendent, the State Department of Education held its Quarterly Conference for Superintendents. This meeting followed the usual pattern, but from time to time one of the speakers "rang a bell" with Forrest. He was generally impressed with the keynote speaker on the first day of the conference and specifically impressed by his observations that future education would be vastly different, that superintendents must take the initiative to get their districts to innovate faster and not wait for a Russian Sputnik or something else to provide the impetus and the direction for change. The speaker briefly alluded to the fact that the demand for more rapid innovation would cause some changes in personnel practices. So Superintendent Forrest became aware of one major problem, but had little knowledge of what to do about it.

The conference speaker was on the right track when he mentioned the relation between personnel practices and the pace of innovations. The study of the change process in education is, by and large, a study of the people who are studying, testing, adopting, or rejecting new ways of doing things. Who makes the decision to adopt an innovation? An individual person does. How do innovations spread? Only as individual people interact and communicate with one another.

A school system consists of people: teachers, administrators, bus drivers, custodians. The structure of the organization, the policies and procedures, and the courses of study are important only in terms of the way they influence and affect the behavior of individual people. Where does this knowledge lead us? Obviously, one cannot study the change process without studying some areas of personnel administration, mainly such areas as identification of key personnel; assignment of teaching personnel; duties of administrative personnel; and finally, selection and assignment of administrators.

In Chapter III discussion was made of Rogers' system of classifying people into adopter categories: innovators, early adopters, early majority, late majority, and laggards. The innovators and early adopters make up a small percentage of any group—farmers, physicians or teachers—but their role is an extremely important one. They get things started slowly, consistently, and deliberately. Then others follow. It would be safe to say that most schools have some opinion leaders (early adopters) who need to be identified and nurtured. The word "nurtured" implies that these people must be placed in an environment which will stimulate change. During the early stages of any program of planned change, the major efforts should be directed toward the innovators, the early adopters and the opinion leaders because the early majority, late majority, and laggards will only consider programs after the innovators and early adopters have tried them. So personnel practices should avoid putting stress or pressure on those who are slower to adopt new ideas and concentrate on identifying the innovators and opinion leaders in order to give them what they need to get started. It also requires leaving most people alone until the opinion leaders have had a chance to communicate with them about new programs.

However, this should not be construed to mean that late adopters and laggards should be ignored. According to Rogers' (1962) description of the various adopter categories, these people enjoy less status than others, and, by and large, they communicate very little with others. To alleviate this situation the district must have a program to keep all staff members informed of new programs without pressuring everyone to change. Perhaps a large proportion of late adopters and laggards are the results of past mistakes of those involved in staff selection, supervision, internal communication, and in-service education. What efforts were made to help these people become an integral part of their school or their school district? Were they recognized when they did perform well? Were they ignored by other teachers and by administrators? How much help and supervision did they receive when on probation? If efforts to help them fail, will anyone have the courage to be honest with them? There comes a time in school administration when action is needed in severe

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cases. Since a confirmed laggard cannot possibly provide quality programs for boys and girls who will live in an ever-changing society as adults, the administration must establish a day of reckoning in which the individual must "shape up or ship out."

If administrators assume that people will change naturally, they may be making a rather serious mistake that could lead to a naïve strategy for changing school programs. Miles (1964), in summarizing many research studies in education, concludes that innovations are seldom adopted on the basis of their own merits. Lippit, Watson and Wesley (1958), in their research in industry, conclude that people change because of a sense of dissatisfaction or tension between "what is" and "what ought to be" and for most people this difference is the same as the difference between what they are doing and what the opinion leaders are doing. It is always difficult to create this feeling by administrative edict, so we must look for school and district environments conducive to change. It must be possible for teachers to be dissatisfied or critical of programs and for administrators to create settings where problems are recognized as inevitable and ever challenging. Teachers must be able to talk with other teachers, with consultants, and with administrators about the programs they provide for boys and girls, and if problems arise, the administration and staff in a school or district must be willing to help in solving problems by helping teachers look at alternate courses of action such as new programs, new equipment, new media, and new ways of doing things.

How personnel are assigned may influence the fate of innovation in a school or school district. Griffiths (1964) has some interesting ideas on the interplay of the various parts of education systems, feeling that they develop methods of working with each other to minimize conflict. Each part has a job to do and tends to do it in such a way as not to disturb other parts of the system, since a change in one part of the system affects other parts. Obviously, a system with little or no conflict has few tensions or dissatisfactions, and staff members show little concern over the difference between "what is" and "what ought to be."

There are some implications for the selection, assignment and transfer of personnel. A personnel director is considered "democratic" when he involves principals, department heads, and teachers in interviewing and selecting teachers, but unless he is careful, he may be a partner in stifling change. Principals, department heads, and teachers often look for people who will "fit" their school or their department. They look at the candidates in light of the people already in the department, in the school, or at the grade level. They tend to pick someone who will work well with others in a particular part of the

system. To bring about change, the opposite is often needed. A school, department or grade level may need a new member who does not "fit," who will rock the boat, who will do things in a different way.

There is nothing wrong with involving principals, department heads, and teachers in the selection of teachers. In fact, they should be involved in selection of teachers for the school district generally, but not for a particular position in the school district. Early in the school year principals, department heads, and teachers should work with the personnel director in developing guidelines and specifications for recruiting and selecting teachers. The placement of teachers in various positions should be done by the district administration. They can make the decisions to provide balance among faculties in terms of experience, training, and types of teachers. The alert administration may even assign personnel to the various schools to establish conditions of "controlled conflict" and shake the *status quo*.

If the impetus for change must come from the top, then school districts should examine the assigned duties of administrators. Without the support of administrators, teachers will be reluctant to adopt new ways of doing things. Principals are in key positions, wielding power in several areas, such as the assignment of teachers, composition of class groups, and the extent to which parental pressures may affect staff members. Innovation may well occur because of the principal, but it is difficult, if not impossible, for innovation to occur in spite of him.

Chesler, Schmuck, and Lippit (1963) studied elementary and secondary staffs in their search to determine factors influencing innovative teaching and found that teachers will try a new practice if it will help solve problems important to them and their pupils, if it is easily adaptable to their own styles of teaching, does not demand a great investment of time or energy, and if the school administration will support new teaching practices. To stimulate innovative teaching, the principal must know his staff and must understand the innovation. Helping teachers takes time and requires knowledge, skills, and abilities. Principals need help from the district to minimize the time demands that go with organization and management of schools. They must be given more time to spend working with staff and learning about new programs.

The principal can no longer be merely an organizer, manager and harmonizer. He must be a scholar, a leader and a communicator. Superintendents must take these factors into account in selection of principals. The old guidelines by which administrators were selected must be replaced by more defensible ones, such as those suggested by Gross and Herriott (1965). Their studies indicate that the following qualities make for a good principal:

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A high level of academic achievement in college.
A high degree of ability to get along with other people.
A strong desire to serve.
A willingness to spend more time at the job than most people think is necessary.

Furthermore, these factors were all directly related to staff morale, professional performance of teachers, and the learning of pupils.

Yet, what are the factors most often taken into account in the selection of principals? Gross and Herriott found the following to be the selection bases: sex, marital status, experience in teaching or administration, length of service, and number of graduate courses taken. Yet none of these factors distinguished the good principal from the poor one.

The job of providing quality education for boys and girls becomes more difficult and challenging every year. Everyone involved in the process of education must know more about the nature of our changing society and the resulting demands on the schools. All of us must know more about the way boys and girls learn, grow, and develop. Finally, we must know more about the structure of the subject matter disciplines. None of these will occur when schools and districts are staffed with principals whose skills are limited to the organization and management of the existing educational structure.

It would appear from the studies previously mentioned that the principal must become the change agent in his school. First of all, he must introduce knowledge and information about innovations into the school as teachers must see the need for an innovation before it can be successfully introduced. When the principal works with his staff, he should help them to increase their skills in evaluating and trying new ideas. Finally, the principal must understand the social relationships within his school. With help from principals some teachers innovate on their own; however, most will innovate only after the opinion leaders have convinced them. The principal must be certain of his opinion leaders and work with and through them.

Anthropologists tell us that neither the trader, nor the missionary, nor the government official can transmit any more of his culture than he, himself, understands. Likewise the principal, lacking understanding, cannot successfully introduce an innovation that he doesn't fully comprehend.

In the same manner, the superintendent must do for the principal what he expects the principal to do for the teacher. The superintendent and his staff must supervise and evaluate principals, and this includes visits to schools followed by conferences. The district should provide in-service programs and sufficient help for principals as they introduce innovations in their schools.

Finally, some implications from the literature on the selection and assignment of administrators may be of value. Griffiths (1964) has a few propositions that merit exploration. One of these is that "change in the organization is more probable if the successor to the chief administrator comes from outside the organization rather than from inside." Carlson (1965), in a study of superintendents, found some evidence to support this hypothesis. Those appointed from outside the system tended to be innovators, while those appointed from within tended to support the *status quo*. When a person is appointed from within, he has channels of communication providing him with information about the various parts of the system. From his knowledge and experience in the district he knows what to do to keep these various parts in harmony with one another. If he does something to upset the equilibrium, he gets "feedback" from the system rather quickly and usually he responds accordingly. But, as we have suggested before, change is more likely to occur as a result of some conflict and disagreement among the various parts of the school or the school district. Conversely, harmony is deadly to growth. So the person from outside who knows nothing of these channels of communication, either through ignorance or design, is bound to upset the happy relationships among the parts of the system and thus disturb the *status quo*.

What does all this mean in terms of personnel decisions? When key leadership positions—such as principal, vice principal, or department head—are open, what candidates would be the best choice? If Griffiths' premise is valid, then the selection must come from outside the immediate school. Can a person move up the ladder within his own school from teacher to principal and still provide leadership for change? Scholars, such as Carlson and Griffiths, feel that his chances are less than those of the outsider. Contrary to the immediate reaction, we do not imply that districts should not have programs to identify, train and select their own people for leadership positions. However, teachers who become principals can be more innovative if they do not become principals in schools where they have been teachers. Promotion, in another school within the district, is sound, but promotion within a school may impede educational innovation.

Sometimes it is necessary to go outside the district to fill administrative positions, and this decision is justifiable in two cases. The outside candidate will provide greater leadership because he is free from inside pressures and, in many cases, may be better trained for the position. Furthermore, jealousies among candidates from within may strain staff relations to the point where staff development is impossible and going outside is the only solution.

What should a superintendent or a school board do if an opening occurs in a school and the best candidate comes from within that

school? In such cases it appears that another person with a parallel position should be transferred to this school where the opening exists, and the best candidate appointed to the position in another school. Let us assume that Mr. Smith, principal of Lincoln Elementary School, retires. The best candidate, in the eyes of the personnel administration, is Mr. Clark who teaches fifth grade in the Lincoln Elementary School. They could transfer another elementary principal, Mr. Jones of Washington Elementary School, to Lincoln and recommend that Mr. Clark be appointed principal at Washington Elementary School.

Another of Griffiths' propositions is that the "number of innovations is inversely proportional to the tenure of the chief administrator." When channels of communication become established, the chief administrator gets feedback from the various parts of the system. The latter then become peaceful and stable and do not interact much with one another, and the notion of the 'controlled conflict' ceases to operate. By school policy there should be a plan whereby principals do not remain in one school too long. Growing school districts tend to appoint new principals to new schools. They should consider a current principal for the new school and place the new principal in the existing school. When a principal is moved from one school to another, he shouldn't ask to take too many former staff members with him.

These, then, are some ideas on personnel administration and innovation. Since people are involved in curriculum development programs, and since most innovations are tested and adopted through such programs, this phase of the school operation also must be explored.

VII. Strategy for Change

Superintendent Forrest paced the floor in his office. A lady from the Citizens For Public School Improvement had just called to tell him about an excellent primary reading program she had read about in the latest issue of Time *magazine, and Forrest wondered if she had also read the section on medicine and called her family physician to bring him up-to-date. Yes, the time had come to plan some strategy for change because he realized that he could no longer preserve the* status quo *and get by with only minor modifications in school programs. The students in the district schools deserved better, and the public pressure was an indication that change was long overdue.*

"Where shall I start?" pondered the frustrated administrator.

He remembered reading an issue of The Elementary School Journal *in which Heywood (1965) described some unsound and outmoded strategies for change. Forrest decided to start at this point by rejecting these strategies:*

The leadership *approach. Superintendent Jones attended a meeting and came back with a big new idea on team teaching. Now all the schools are going to have team teaching.*

The band wagon *approach. Everyone else is doing it, why not us?*

The great man *approach. If prominent educators say it is a good thing, we had better do it.*

The generalization *approach. If it worked in Poughkeepsie, then it is good for Idaho Falls, Beaverton, Kennewick, and Big Forks.*

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The keep them off our backs *approach. Pressure groups—the PTA wants the change, or Citizens for More Government Courses in Our Schools, or that Mrs. Wilson who is always harping on foreign languages in the elementary schools—must be silenced.*

The lots happening *approach. If we can ballyhoo the idea that something new is always happening in our school system, people will think we have a good program, and they will not be critical of the school administrator. And, furthermore, what administrator doesn't like to see his picture in the paper along with a favorable story.*

The let's try something new *approach. We have been doing things the same way for many years; it's time for a change.*

Perhaps Superintendent Forrest can use this affirmative list, developed in detail in previous chapters of this monograph, as the framework for his curriculum development plans:

Schools will either change on a planned, systematic basis, or they will change through a series of crash programs following periods of inaction and complacency.

People usually become aware of an innovation through a mass media source of information.

The change process takes place within a social system. The values and patterns of the school, the school district, and the community influence the fate of innovations.

People are more likely to try new programs if they do not conflict with existing ways of doing things.

Teachers and administrators do very little, if any, inventing. Almost all of what people know and do was borrowed from others.

Before an individual adopts an innovation, he goes through a step by step process involving awareness, interest, evaluation and trial. Usually an individual becomes aware of an innovation before he sees the need for it. Rarely does he feel a need and then look for the innovation.

Innovation will be rejected at the interest and evaluation stages more often than at the awareness or trial stages; however, rejection may occur at any stage of the adoption process.

Mass media sources of information are most effective at the awareness stage of the adoption process.

Personal sources of information are most important during the evaluation stage of the adoption process.

The awareness to trial stage is shorter for those who are the first to adopt, but they require a longer and more rigorous trial stage.

Early adopters tend to try an innovation on a smaller, controlled basis than those who adopt later.

The last ones to adopt are more likely to discontinue innovations than those who adopt earlier.

The innovators are a small minority and usually get their information from sources outside the system.

The rate of adoption for any innovation proceeds very slowly at first. When opinion leaders try and then adopt the innovation, the rate of adoption increases rapidly until it tapers off and slows down with the very last to adopt.

Innovations diffuse when contact and interaction exist among peoples and systems.

Innovators generally are young with a good educational background, enjoying a relatively high social status. They rely on sources of information (personal and mass media) from outside the system, and are usually in close contact with other innovators.

The early adopters are more a part of the local system than innovators. They enjoy a high social status in the system, and are the opinion leaders that most people check with before trying something new.

The early majority are deliberate people who consider an innovation for some time before trying it, but spend less time in the trial stage than those who adopt earlier.

The late majority are skeptical and adopt innovations without much trial after feeling the weight of public opinion and social pressure.

The laggards cling to tradition, have less social status within the system, and are suspicious of anything new.

The mass media sources of information are more important to the innovators and the early adopters than to other adopter categories.

The personal sources of information are more important after the awareness stages of the adoption process and are more important to those who adopt after the innovators and opinion leaders.

Schools are essentially bureaucratic institutions, and teachers are bureaucratic functionaries.

The impetus for change originates from outside the educational system, and within the system the pressure for change comes from the top down.

Two theories that should be tested are that the number of innovations in a system is inversely proportional to the tenure of the chief administrator, and innovation is less likely to occur when the various parts of the system exist in harmony.

Early studies on the diffusion of innovations indicate it has been a very slow process involving about fifty years. The most fertile spots for innovations have been the communities with the best financial ability to support schools.

More recent studies indicate that it is possible for many innovations to spread rapidly through the educational system, and the most fertile spots for the spread of innovations are not necessarily those districts with the best financial ability to support educational programs.

The most successful innovations are those which increase the autonomy and initiative of the users.

Those innovations rated high in relative advantage, compatibility, divisibility, and communicability and low in complexity appear to have the best chances of success; however, there is very little evidence to show that the characteristics of an innovation affect its rate of diffusion.

Cost tends to slow down innovations, particularly if the innovation cannot be tried on a limited basis.

Technological innovations are usually easier to adopt but are also easier to discontinue or reject.

Innovations which are accompanied with the most elaborate help for teachers have the best chances for success.

An innovation which can be added to an existing program without disturbing other parts of the program is more likely to be accepted. Schools with a relatively stable environment are less likely to innovate because their clientele is assured.

The bureaucratic organization and operation of school districts is a barrier to the diffusion of educational innovations.

Schools are handicapped in making changes in various programs because they have little or no knowledge of the effectiveness of new programs.

The change agent is one who advocates change and gets it started in a system. An effective change agent understands the cultural

norms of the system and introduces those change elements most likely to fit the system.

The change agent doesn't force change on people in a system; rather he helps them to judge and evaluate innovations in terms of their own situations.

The change agent identifies the opinion leaders in the system who will help the spread of innovations through the system.

The superintendent is neither the victim of his budget nor a powerless office holder dominated by the school board. He may be the effective change agent.

Innovations spread sooner and more rapidly in districts whose superintendents enjoy a relatively high status among their fellow superintendents.

Change in a school district is more probable if the successor to the chief administrator is chosen from outside the organization.

Teachers are more likely to try something new: if it will help solve problems important to them and their pupils; if it is adaptable to their style of teaching; if it does not demand a great investment of time and energy; if the school administrator supports the new practice.

These generalizations, developed in previous chapters of this monograph, summarize much of the knowledge and research on the change process. From them, people interested in improving programs can develop some promising strategies for use in an individual district's program of curriculum development.

To further aid administrators, some sound strategies to accompany these generalizations are included.

The change program must be tailored to fit the values and past experiences of the people in the schools. Since no two schools or school district are exactly alike, it is highly improbable that any innovation can be introduced in the same manner in more than one situation. Furthermore, innovations that work in one school will not necessarily work in another. These situations put the administrator in a very crucial position requiring him to understand his staff, the social values and relationships within his school or school district, and the innovation in planning a strategy to introduce something new.

The first step in starting change is to make people aware of the innovation so that they may see a need for change. This strategy is a sound one because people very seldom feel a need and then look for an innovation to satisfy the need or deficiency. It is important to remember that teachers do not like to be "force-fed" innovations; the knowledge that something is new makes them uncomfortable. A more effective approach is to create a sense of awareness by providing

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teachers with opportunities to attend professional meetings, read professional literature, and talk with people outside their school and their district. As mentioned previously, most of what people do was borrowed from someone else or from somewhere else, and ideas will not diffuse unless there are plenty of opportunities to communicate with others outside of their own immediate situations.

The task of the administrator is to help teachers evaluate and test innovations. All too often schools have separated planning from doing, resulting in lack of enthusiasm on the part of staff members.

Change must be introduced slowly at the beginning, and immediate successful results should not be expected. The first to try are a few venturesome people, willing to take a risk. Furthermore, these people take time to try and test new programs and should not be rushed. Another small group follows the opinion leaders, and only when they adopt, does the pace of adoption of the innovation quicken.

In addition to realizing that innovations spread slowly, the administrator must concentrate his efforts on innovators and opinion leaders. An innovation will not be spread until the opinion leaders give their "stamp of approval."

The administrator and his staff should try to anticipate the consequences of an innovation, since a change in one part of the system affects other parts. For example, lowering the load of some staff members may lower the morale of others. Increasing required subjects usually decreases enrollments in elective subjects.

The administrator must realize that there are barriers to innovation within his own organization and then use various means and devices to reduce these roadblocks. Schools are slow to change, and any suggestion for change poses a threat to many parts of the system. The use of temporary systems (pilot programs, model schools, summer workshops) reduces the threat to the system as a whole, and a good system of linkages will assure that the results of the temporary system will be communicated throughout the system.

The administrator must make curriculum development programs a collaborative effort of school administrators, teachers, and outside people. There is a tendency for people in the same position to merely reinforce one another's biases when they get together. Involving people from more than one position in a project or meeting reduces the chances of this catastrophe. Furthermore, people in different positions have different perspectives on the same problem, and when the group is diverse, the group's perspective is broader.

The administrator must make the most elaborate help possible available for teachers as they consider new programs. A study by Fox and Lippett (1964) illustrates the soundness of this strategy. They worked on a project with groups of teachers involved with consultant help from outside sources, some attended monthly clinic

sessions, and some were involved in the exchange of information through the various formal and informal channels. One group of teachers was involved in only one of these activities, another group was involved in more than one activity, and a final group was involved in all of the activities. Those teachers who made the greatest number of innovations with their classes were the ones involved in the most activities. Brickell's (1964) studies in New York State reached the same conclusion.

The load on teachers at all levels and at all times is heavy, and it is difficult enough for them to conduct existing programs much less carry out new ones. With a busy person every little bit helps—workshops, materials, guides, consultants—and any one of these may make the difference between adoption and rejection.

The role of a teacher must be more than that of a bureaucratic functionary if schools are to innovate faster than in the past. For too long teachers have been "doers" and not involved enough in "thinking and planning." Furthermore, school districts have too often been guilty of assigning problem solving to a few specialists. As Victor Thompson (1964) puts it, problem solving should involve a wide diversity of inputs. Ideally, the whole organization should be involved in the search for solutions to problems and new ways of doing things. With this involvement the teacher may review the school district as a place where he can grow professionally and personally and not merely as a source of income for the performance of prescribed duties. In addition money spent for extended contracts for teachers is a better investment than money spent for released time or reduced load because adopting and developing new programs take time, preferably in concentrated dosages. If Simon (1962) is correct, Gresham's Law applies in this situation. Routine work drives out creative thinking, just as "bad money drives out the good." The device of assigning a reduced teaching load to a teacher as a means of freeing him to do "thinking and planning," is inadvisable. He will not perform effectively during an occasional period or two interspersed among his teaching duties. The same amount of uninterrupted time provided through an extended contract would be far more productive.

The administrator and his staff must be able to make decisions about the innovations they will consider and those they will reject. First of all, no school or school district can adopt all innovations. They must pick and choose those innovations which seem appropriate for their situation. This responsibility involves having the power to reject those innovations which may seem the most glamorous and are getting the most publicity at the time.

The administrator must keep all parts of his system informed on the progress of innovative programs. Public institutions sometimes do experimental work in quiet fashion, hoping to avoid public criticism

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and staff concern. In the process they accomplish exactly what they did not want to accomplish: the public gets critical and the staff gets concerned. The soundest strategy is to keep staff and public informed; otherwise, neither will be convinced that what the district or the school does is worthwhile.

Superintendent Forrest no longer paced the floor, but sat in his big executive chair looking at the window and thinking through some plans. Next week he would discuss some ideas with the Board members at the regular meeting, and perhaps they would see the need for making the district more innovative. Then he could get to work with the staff, the professional association, the public, and some outside sources of help and information and really put his district in the category of those dynamic institutions which are accepting the challenge of the changing society.

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